REMARKS/ARGUMENTS

1. Claim Objections

Claim 14 is objected to because of the following informalities: the term "stored" was misspelled.

5   **Response:**

Claim 14 has been amended to respell "stroed" as "stored". No new matter is introduced. An acceptance of the amendment made to claim 14 is respectfully requested.

2. Claim Rejections – 35 USC 103

10   Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (US 6133957) in view of Hahn (US 7092033).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell in view of Hahn as applied to claim1, and further in view of De Haan (PCT Pub WO03/038753, also published as US 7206027).

15   **Response:**

Claim 1

As recited in claim 1, "a first pixel difference set" is generated "from the received pixel values using a first pixel difference algorithm" and "a second pixel difference set" is generated "from the received pixel values using a second pixel difference algorithm".

20   Rather than teaching or suggesting first and second algorithms for generating first and second pixel difference sets, respectively with the received pixel values, Campbell applies a function to pixel sets 111 and 211 and pixel sets 112 and 212 respectively, thereby generating measurements of variance v_{311} and v_{312} (Campbell: col. 3, line 57- col. 4, line 17). The pixel sets (111 and 211) and (112, 212) each are meant to be non-overlapping

25   pixel sets of the image concerned, which in comparison to the received pixel values as recited in claim 1, occupy different scopes as claimed in their respective inventions. In the specification of the instant application (paragraphs [0032] - [0042]), the same pixel may be used for more than one time to obtain the desired first and second difference sets.

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Therefore, pixel sets (111, 211) and (112, 212) of Campbell fail to read on the claimed received pixel values.

In addition, it is anticipated that the same measurement function taught by Campbell will be used for all pairs of sets of pixels (111, 211) and (112, 212). However, as recited in claim 1, different sets are generated with different algorithms. The claimed algorithms should not resemble a single function taught by Campbell.

Claim1 further details the received pixel values to be blended "according to the first pixel difference set and the second pixel difference set, to generate the target pixel value." The first and second pixel algorithms are required for determining the target pixel value of the additional pixel when the above-mentioned limitations of "generating a first pixel difference set from the received pixel values using a first pixel difference algorithm" and "generating a second pixel difference set from the received pixel values using a second pixel difference algorithm" are referred to. The applicant therefore asserts that the limitations directed to the claimed reference pixel values are neither taught nor suggested by the cited references, alone or in combination. Rationale is given as follows.

According to the teachings of Campbell, neighboring pixels of the additional pixel are used for interpolating along a direction (Campbell: col. 12, line 15-19). The given direction requires at most a single pair of pixels to be chosen among the neighboring pixels. Nonetheless, in the instant application, the received pixel values to be blended according to the first pixel difference set and the second pixel difference set resemble interpolation of more than a pair of pixel values.

As disclosed in Hahn, a pixel in an image is interpolated according to the determined gradient weighting factors (Hahn: Figs. 1-3; col. 3, line 44-col. 4, line 32). Although different metrics may be employed for determining the gradients, only a single one may be in use because of comparison consistency (Hahn: col. 4, line 39-41). In the instant application, however, the claimed received pixel values to be blended apply algorithms other than the one employed for determining the gradients.

For at least the forgoing reasons, claim 1 should be found allowable over the cited

references, and the rejections based thereon should be withdrawn accordingly.

Claims 2-20

Claims 2-20, which are by virtue of depending upon claim 1, should be allowed if claim 1 is found allowable.

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3. Patentability of New Claims 21-22

Claim 21

Claim 21 includes limitations recited in claims 1 and 8, with further limitations of defining the gradient characteristic used for angle determination. The disclosure of these

10   additional features could be referred to paragraph [0034] of the instant application, wherein the first pixel difference unit takes account of the gradient parameter when determining two angle values corresponding to a pair of pixel sets on either side of the normal axis. Hence, no new matter is introduced.

Note is respectfully made by the applicant that Campbell merely teaches an analysis

15   circuit (analyze 30) that receives a first measurement signal and a second measurement signal. The first measurement signal represents a minimum of the measurement function that corresponds to a pair of sets having reference points defining a line forming an acute angle with a reference vector (300) in the first quadrant, whereas the second measurement signal represents a similar minimum in the second quadrant (Campbell: Fig. 3; col. 6, line 45-67). A

20   best choice selection then chooses measurement signals that represent deep minimums, small angles, or preferably both (Campbell: Fig. 4; col. 7, line 1-24). It is carefully observed that Campbell fails to reference gradient characteristics for the selection of measurement signals which are supposed to be used for determining an interpolation angle.

Regarding the cited reference of Hahn, the gradient values are computed to determine

25   weighting factors for generating the interpolated pixel value (Hahn: col. 4, line 11-col. 5, line 51). Nonetheless, Hahn fails to disclose any detail regarding the selection of an interpolation direction except in an exemplary embodiment teaching that the interpolation runs in the direction of the columns or perpendicularly to the lines (Hahn: col. 3, lines 25-29). It is

believed that Hahn fails to teach or suggest the reference of gradient characteristic of pixels in the selection of an interpolation direction (angle).

In light of the above statements, the applicant asserts that neither Campbell nor Hahn alone or in combination teaches or suggests the claimed limitation of "determining a

5   plurality of <u>candidate angles</u> according to the first pixel difference set and the <u>gradient characteristic</u>" (*emphasis added*). It is therefore presumed that claim 21 is allowable over the cited references.

<u>Claim 22</u>

Claim 22 includes limitations recited in claims 1 and 14. A further limitation that defines

10   the use of a known angle of blending corresponding to a previously processed interpolated pixel is also incorporated therein. The additional feature is fully supported in paragraphs [0044] and [0057]-[0072] of the instant application. No new matter has been introduced.

Upon careful review of the cited references, the applicant finds no description pertinent to the above-mentioned limitations. Therefore, the applicant asserts that the claimed

15   limitation of "selecting an angle of blending according to the first pixel difference set, the second pixel difference set, and <u>a known angle of blending utilized for obtaining a pixel value of a previous additional pixel processed prior to the target additional pixel</u>" (*emphasis added*) renders claim 24 allowable over the cited references.
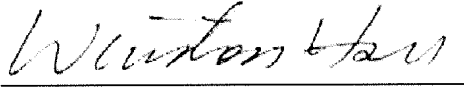
20   **Conclusion**

For the reasons as described above, the applicant believes that pending claims 1-22 are allowable over the cited references. Withdrawal of the rejections and the allowance of the newly added claims are respectfully requested.

Should the Examiner feel that further discussion of the application and the

25   amendment is conducive to prosecution and allowance thereof, please do not hesitate to contact the undersigned at the address and telephone listed below.

Sincerely yours,

Winston Hsu Date: _____ 11.01.2007 _____

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10   Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)